FIELD MUSEUM STORIES

Snow—A Blanket for the Earth

Series XXXVI, No. 1
March 1, 1941

Looseleaf No. 37

SNOW—A BLANKET FOR THE EARTH

Snowflakes are little crystals of ice. They form when water vapor condenses and freezes in very cold air. If the water vapor condenses but does not freeze it forms rain; if it condenses into rain and then freezes, it forms hail or sleet.

You may wonder what water vapor is. It is simply water that has changed from familiar liquid water into an invisible gas. We call this process evaporation and it takes place whenever water is exposed to dry air. Snow, then, is water vapor that has frozen into ice without first forming droplets of water.

Snowflakes are found in many very beautiful patterns. Photographs of thousands of snow crystals show that almost all of them are six-sided or six-pointed (hexagonal) in shape but that no two are exactly alike (see illustrations). Since snow crystals often grow very rapidly in the air many of them are skeleton or network crystals looking very much like fine fern leaves.

Ice is transparent and colorless but snow is white. The whiteness of snow is due to the reflection of light from the multitude of tiny points and edges of the delicate crystals.

The wind may blow a cloud of ice crystals to a colder region. Then the crystals begin to fall. As they drop they collide and grow together to form larger snowflakes. Usually the farther snowflakes fall the larger they grow.

In the United States east of the Rocky Mountains and north of the Ohio River snow falls almost every winter. In the warmer southeastern parts of the country snow that forms high in the air usually melts and falls as rain in the winter. Snow is a valuable asset to our country. It melts and sinks into the ground and this water is gradually released in the summer so that streams rising in the mountains continue to flow in dry seasons. As a result, farmers in the dry lowlands nearby use water that fell as snow the winter before to irrigate their fields. The snow blanket also protects the farmer's winter wheat and clover from alternate freezing and thawing that might kill the seeds. Melted snow furnishes moisture in the spring for sprouting seeds and growing plants.

The snow that falls in the northern United States is valuable for still other reasons. It forms a smooth surface on the ground so that lumber can be hauled out of the woods on sleds. Snow also forms a blanket that keeps the ground from freezing to great depths and keeps water pipes from breaking.

In the forests, thawed snow is absorbed by the mass of roots and decaying leaves. This forest débris acts like a great sponge and holds the water until it is needed. Lumbermen and herds of sheep have cleared the summits and sides of many mountains and removed the plants that held the snow and water on the steep slopes. Now when snow melts on these mountains the water does not soak into the ground but flows down the mountainsides, carrying soil and rocks along and cutting deep gullies. When trees and plants have been destroyed melting snow can cause wasteful erosion and destructive floods.

In polar regions and on high mountain tops there are snow fields that remain year after year. The snow falls each winter and because of the low temperatures in the summer it does not melt. The weight of one snowfall on another may cause the snow to slide down the mountain slopes, blocking the highways and railroads. Often the closely packed snow moves downward and a glacier is formed. Many of the highest mountain slopes even in the tropics are covered by mountain glaciers. The interior of Greenland is covered by a continental glacier extending over 700,000 square miles of land. The snow fields in the center of Greenland are 8,850 feet deep.

The scientist Darwin found some red snow in the Andes Mountains. When the snow was crushed by horses' hoofs or was rapidly thawing it was colored red. Closer examination revealed tiny red plants in the snow. These were a species of red algae, small one-celled plants. Other snow-inhabiting algae may color snow green, yellow or blue. Sometimes snow may be colored yellow, red or brown as the result of the mixture of dust from a volcano with the snow.

MARIE B. PABST
Raymond Foundation

NOTE: Several cases in Hall 35 show the effects of snow and ice on the earth's surface. For more information about crystals see Field Museum Story, Series XXXIII, No. 10.

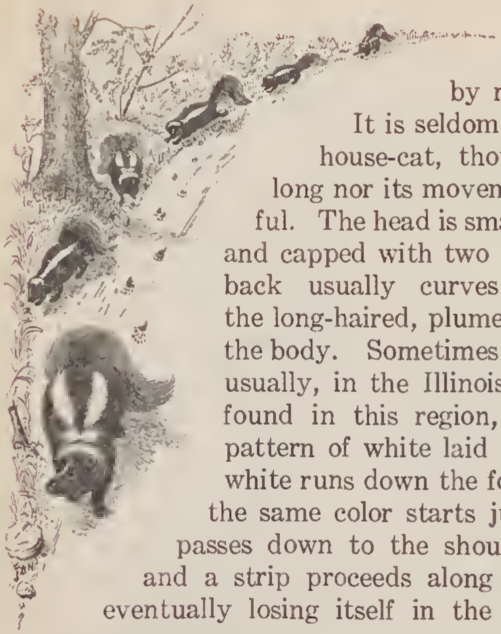
This page is for your own notes and illustrations

FIELD MUSEUM STORIES

The Skunk and Its Habits

Series XXXVI, No. 2
March 8, 1941
Looseleaf No. 38

THE SKUNK AND ITS HABITS



One of the American mammals most familiar by reputation is the skunk. It is seldom larger than an ordinary house-cat, though its legs are not so long nor its movements so swift and graceful. The head is small, somewhat triangular, and capped with two low, rounded ears. The back usually curves slightly upward and the long-haired, plumed tail arches away from the body. Sometimes the color is all black, but usually, in the Illinois skunk most commonly found in this region, it is a rather definite pattern of white laid in black. A fine line of white runs down the forehead, while a block of the same color starts just behind the ears and passes down to the shoulders. There it divides and a strip proceeds along each side of the body, eventually losing itself in the tail.

The color and shape of the skunk are not in themselves cause for alarm, yet at sight or smell of the glossy low-slung body, most other animals step well aside and give it full right of way, to avoid its unique protective device. This defense weapon, well concealed under the base of the tail, consists of two small sacs which act as storage chambers for a particularly offensive-smelling fluid, the skunk musk. When sufficiently provoked, the skunk can so tense the muscles surrounding the scent bags that the musk is shot out freely upon the luckless enemy. The aim and range of fire of the skunk are remarkably good. If an attacker approaches from above, behind, or the side, he may be thoroughly drenched with spray even at a distance of twenty feet from the source, but since the supply of musk is not inexhaustible, it is used only in times of greatest stress and only after a preliminary warning performance has had no effect. Before each shot, the skunk beats the ground with its front feet, lifts high its tail, and as a final gesture straightens the drooping tip of the tail upward. Few are those who stay nearby after these signals of action have been given.

Skunks are found over most of the United States, as well as north into Canada and south to Guatemala. Their life is spent mainly on the ground. Usually, after resting all day in some secluded spot, the skunk starts out at twilight to look for food. The long, heavy claws on its front feet are the tools with which it digs up the earth or scrapes aside leaves in hunting for the roots, fruit, grasshoppers, crickets, eggs, mice, frogs, and snakes which go to make up its varied meals. By thus keeping down destructive insects and other small animals, the skunk is of great value to the farmer. Generally, the skunk remains active all winter long, though in periods of sharp cold it may sleep for several days in its den.

For its home the skunk searches out a well-protected hole, often one that some other animal has made, along the edge of a wood, in a field, or underneath a deserted farm building. Sometimes the burrow is as long as eight feet or more and at the end of it is built the shallow nest of dried leaves, grass, and small sticks. From six to ten young, no larger than mice, are born, usually in the spring. Their eyes are completely closed and their small bodies are either entirely bare or else covered with only a delicate coat of fur. The future definite markings of the full-grown animal are well outlined on the young skin, but show up in pink and gray instead of white and black. By the time the skunks are little more than two weeks old, the eyes are open and the body is fully furred. Two weeks later the scent glands start to function and the young can protect themselves if necessary. As they grow larger they run with their mother while she hunts, but finally leave her in the following spring when they are quite able to care for themselves.

Elizabeth Best
Raymond Foundation

Note: In Hall 15 several examples of skunks can be seen.

This page is for your own notes and illustrations

FIELD MUSEUM STORIES

Woodpeckers

FIELD MUSEUM of NATURAL HISTORY
FOUNDED BY MARSHALL FIELD 1893
CHICAGO

Series XXXVI, No. 3
March 15, 1941

Looseleaf No. 39

WOODPECKERS

The shape of a bird's feet and bill is usually an indication of its source of food and home. Woodpeckers are examples of birds adapted for life on tree trunks.

Most woodpeckers bore holes in tree trunks for their homes and to secure the bark-boring beetles for food. These wood-boring birds possess long, chisel-shaped bills and their short necks and heavily boned heads are effective in driving their strong bills into the bark.

To aid in its wood-boring the woodpecker is firmly braced by its toes and tail. Most woodpeckers' toes are placed two in front and two behind the leg. Some of the tail feathers of wood-boring woodpeckers end in stiff spiny shafts that prop their bodies against the tree trunk.

Most woodpeckers possess a long barbed tongue that can be extended to a great length. This tongue is protected by a sheath or groove which winds around the back of the bird's skull, extends over the top and continues toward the forehead. After boring for a beetle the woodpecker protrudes its long tongue into the hole and picks out the insect; then the tongue slides back into the sheath, bringing the insect into the woodpecker's mouth.

Besides beetles, many woodpeckers like berries, seeds, and acorns. The Red-headed Woodpecker and California Woodpecker store acorns, nuts and even grasshoppers in the cracks of fences, telephone poles, and trees. Some of the young woodpeckers are fond of black ants that infest certain trees.

Woodpeckers excavate a new hole each year for their nest. While building their home the parents are careful to carry each chip some distance from the tree so that the litter from the construction will not be left to attract attention. Usually a dead tree is chosen for the home site. The hole extends downward about eighteen inches and a few chips are left at the bottom to line the cavity. About five glossy white eggs are laid.

In the United States there are about fifty-five kinds of woodpeckers and most of them are valuable citizens. Only the sapsuckers are disliked because they peck shallow holes in the trees to make the sap flow.

The sapsuckers differ in some respects from other woodpeckers. The tongue is not so long as that of other woodpeckers and the tip is brush-like. Sapsuckers use their tongues to lap the sweet liquid that flows from the tapped tree. Sometimes they eat the inner bark. They dig holes in a ring around the trunk and often place another ring or two just above. If too many holes are bored in one tree by the sapsucker the tree may die. A sapsucker's bill is not so strong as that of wood-boring woodpeckers, so it usually builds its home in a soft-wooded tree such as a poplar or an aspen.

Flickers are woodpeckers that have learned to find food on the ground. They are often seen digging into ant hills and more than half of their food consists of these insects.

The Ivory-billed Woodpecker is the largest American member of the family. Now it is found in only a few remote spots in the Gulf states. Probably this woodpecker once lived in Illinois. The largest member of the group now living in Illinois is the Northern Pileated Woodpecker, found in forested areas.

In the Chicago region the Hairy, Downy and Red-headed Woodpeckers are perhaps best known.

The Downy is the smallest woodpecker in the United States and is quiet and shy, preferring a forest home. Often the Downy Woodpecker can be found in an old orchard, hunting for the Coddling Moth larvae that live under the bark of neglected fruit trees. The Downy climbs round and round the tree, pecking as it goes, until it finds a loosened bit of bark. It can tell by the vibration that underneath is the cocoon in which the larva is spending the winter. It bores a hole neatly through the bark, and pulls out the sleeping larva. During the summer, when the worms attack the fruit, Downy is still on the job, pecking at wormy fruit to remove the intruders.

A Hairy Woodpecker looks very much like a Downy Woodpecker except that it is larger, more friendly, and *much* noisier.

Usually Red-headed Woodpeckers can be seen perched on a telephone pole or fence post rather than on a tree trunk. They have learned to catch grasshoppers on the wing.

MARIE B. PABST
Raymond Foundation

NOTE: The various members of the woodpecker family may be seen in Hall 21.

This page is for your own notes and illustrations

FIELD MUSEUM STORIES

China Moves Along

A Story of Chinese Transportation

Series XXXVI, No. 4
March 22, 1941

Looseleaf No. 40

CHINA MOVES ALONG

There are interesting sounds on the country roads of China—the creaking and groaning of heavy wooden wheels, the clip-clop of hoofs on hard dirt roads, and the pattering sound of peoples' feet.

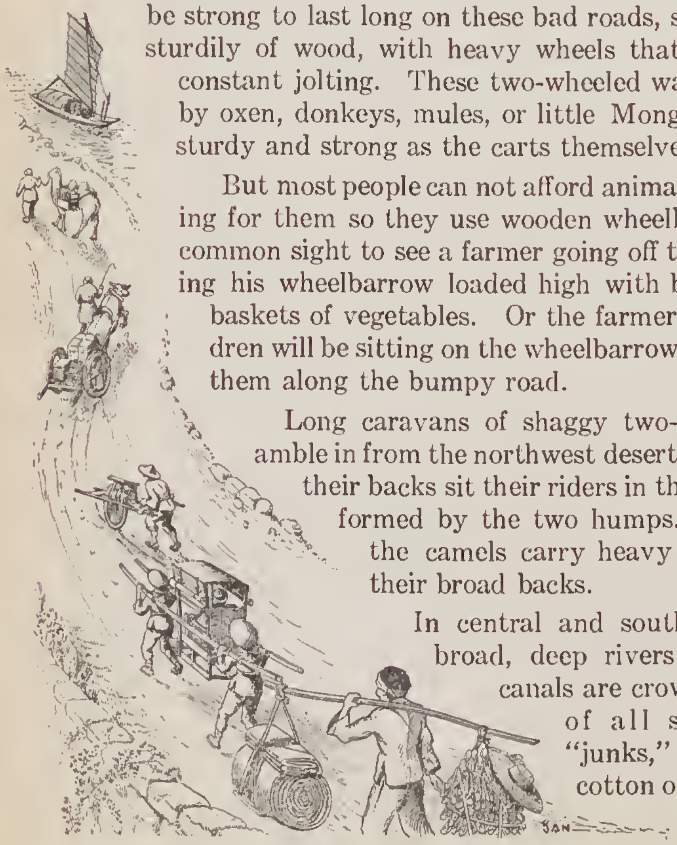
Traveling in China has been a slow business for centuries, but nowadays, with the coming of railroads, automobiles, and airplanes, it is speeding up. On a trip through China you could use many kinds of transportation—everything from a camel to an airplane.

North China is a land of level plains and languid rivers that meander down to the sea. Only little boats can sail these shallow rivers, so most of the transportation is by land. The flatness of the country makes road-building easy, and there are many wide roads, sticky with mud in the rainy season, dry and dusty when there is no rain, and always full of bumps. Wagons must be strong to last long on these bad roads, so they are built sturdily of wood, with heavy wheels that can stand the constant jolting. These two-wheeled wagons are pulled by oxen, donkeys, mules, or little Mongolian ponies, as sturdy and strong as the carts themselves.

But most people can not afford animals to do the pulling for them so they use wooden wheelbarrows. It is a common sight to see a farmer going off to market, pushing his wheelbarrow loaded high with bags of grain or baskets of vegetables. Or the farmer's wife and children will be sitting on the wheelbarrow while he pushes them along the bumpy road.

Long caravans of shaggy two-humped camels amble in from the northwest desert lands. High on their backs sit their riders in the natural saddle formed by the two humps. Or sometimes the camels carry heavy loads piled on their broad backs.

In central and southern China the broad, deep rivers and numerous canals are crowded with boats of all sizes. Large "junks," with sails of cotton or straw matting, move stolidly



along, carrying freight. Smaller freight boats are paddled with a large oar from the stern or pulled by men who trudge along the river banks There are little houseboats where whole families live, traveling up and down the rivers in their floating homes. Tiny fishing boats dart to and fro among the larger craft, paddled or poled along by their owners.

Sometimes the northern canals and rivers freeze over in winter. Then the people use sleds to transport their goods to market; or they attach wooden runners to the smaller boats, which they push over the ice with long poles.

The larger number of the people of China live in the south part, where the soil is more fertile and the weather is pleasant most of the year. There are so many people that almost every inch of land must be used to grow food for them. The land cannot be wasted by using it as pasture for animals, so here there are few horses or donkeys or oxen. The roads are narrow, dirt or flagstone paths between the rice fields, just wide enough for two people to pass each other. Large vehicles would not fit on these paths. People do most of the work of carrying burdens in this part of China. Men with great loads piled high on their backs plod along the little paths. Often they balance a bamboo pole on one shoulder and hang bundles from each end of the pole. They also carry people, who sit in sedan chairs slung between two poles that rest on the shoulders of the bearers.

In the large cities of China light two-wheeled vehicles, called rickshas, scoot in and out among the traffic, pulled by fast runners. These rickshas take the place of our taxicabs in America, and a ricksha man will pull you anywhere you want to go for a small fare. Nowadays there are many automobiles, buses, and street cars; railroads and good highways are being built; airplanes are becoming more numerous; and China is moving along faster and faster.

ELIZABETH McM. HAMBLETON
Raymond Foundation

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FIELD MUSEUM STORIES

Life of the Mayfly

Series XXXVI, No. 5
March 29, 1941

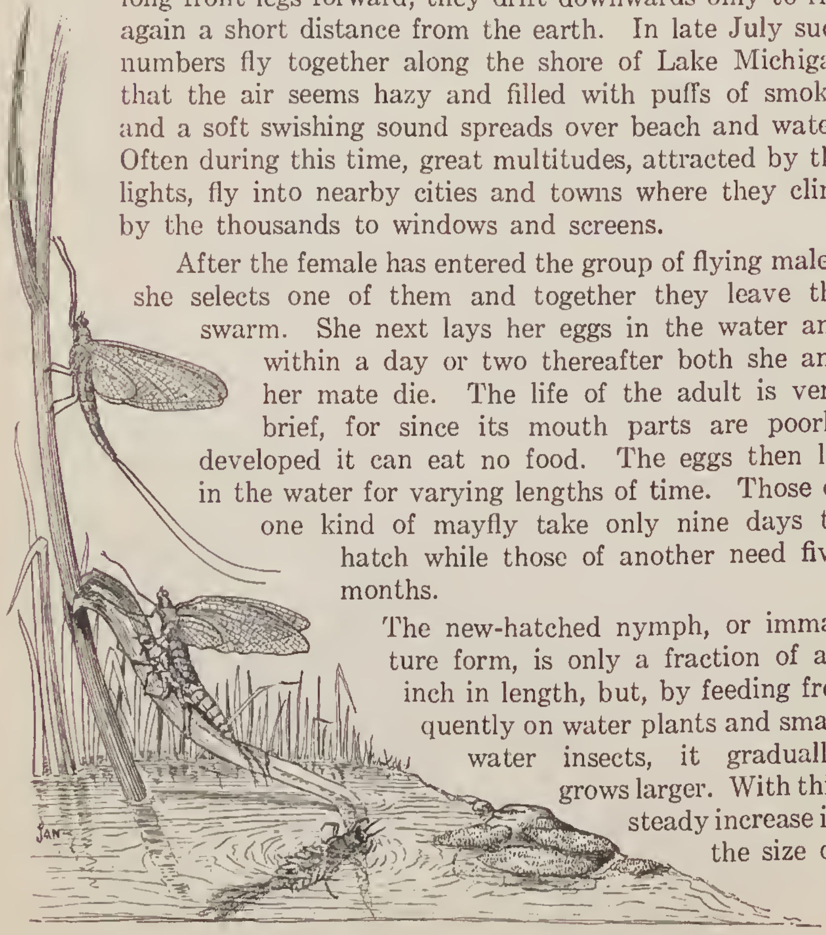
Looseleaf No. 41

LIFE OF THE MAYFLY

The fading twilight hours of summer see the brief unfolding and climax of the life of the mayfly. The mayfly is a delicately built insect easily recognized by the following characteristics: pale gray or tan coloring, two or three long thread-like tails springing from the end of the body, large eyes, and one or two pairs of transparent wings which are slightly triangular and held vertically together when at rest. In open places near bodies of fresh water the adult males gather and flutter in unison through the air, awaiting the arrival one by one of the females. Some, as they go up and down together in vertical lines, have a particularly graceful group flight. They rise swiftly with heads upturned, then, spreading their wings out horizontally and thrusting their long front legs forward, they drift downwards only to rise again a short distance from the earth. In late July such numbers fly together along the shore of Lake Michigan that the air seems hazy and filled with puffs of smoke, and a soft swishing sound spreads over beach and water. Often during this time, great multitudes, attracted by the lights, fly into nearby cities and towns where they cling by the thousands to windows and screens.

After the female has entered the group of flying males, she selects one of them and together they leave the swarm. She next lays her eggs in the water and within a day or two thereafter both she and her mate die. The life of the adult is very brief, for since its mouth parts are poorly developed it can eat no food. The eggs then lie in the water for varying lengths of time. Those of one kind of mayfly take only nine days to hatch while those of another need five months.

The new-hatched nymph, or immature form, is only a fraction of an inch in length, but, by feeding frequently on water plants and small water insects, it gradually grows larger. With this steady increase in the size of



the body, the skin covering becomes too small and is sloughed off many times to make way for the new and larger skin lying underneath. The length of nymphal life depends on the type of mayfly; some live and develop in the water for six weeks, but others remain there for a year or more. At the end of this period, the mayfly is ready to enter on its adult life in the spring or summer air.

Shortly before leaving the water, the nymph darkens in color and takes on a silvery appearance as though there were a film of air under the body skin. Presently it crawls upwards along a blade of grass or reed until its thorax, the part of the body to which the wings and legs are attached, is protruding slightly from the water, and then it rests quietly for a few moments. Slowly the body begins to contract and writhe within its skin, till suddenly a slit appears down the center of the back, and head and thorax ooze out of their former covering. By continued contractions the whole subimago (as this stage is called) slips easily forward until the entire body is drawn out of the nymphal skin. The subimago appears just before the adult and is closely like it except in color. Almost at once the wings are dry and of full size, and the great-eyed, dingy-hued one is ready to try its wings. The mayfly, however, is the only one of the insect group which molts after having acquired wings suitable for flying, so that either before the first flight or shortly after, the subimago, like the nymph, casts its skin, and the adult mayfly finally emerges, its colors bright, its glistening, heavily veined wings ready to fly in the communal twilight dance.

ELIZABETH BEST
Raymond Foundation

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FIELD MUSEUM STORIES

Arbor Day

Series XXXVI, No. 6
April 5, 1941

Looseleaf No. 42

Leaves of White Oak, state tree of Illinois

ARBOR DAY

To remind Illinois citizens that trees are among our most valuable natural resources, the Governor proclaims an Arbor and Bird Day each year. Arbor Day does not commemorate an anniversary or a past event; it looks to the future. It indicates our love of the beautiful and our desire to increase this country's resources and well-being. No one who has planted a tree and so come to realize its beauty and value will thoughtlessly destroy our plant life.

Arbor Day is celebrated on various dates. In the southern part of the United States a day in December, January, or February is chosen. Texas and Alabama celebrate Arbor Day on February 22nd, Washington's birthday. This is appropriate, for the "Father of Our Country" was very much interested in planting trees and about his home at Mount Vernon many of the trees he himself planted are still growing. In the northern states, including Illinois, Arbor Day usually occurs in March or April. California's Arbor Day is March 7th, the birthday of Luther Burbank.

The inauguration of an annual tree-planting day was proposed by J. Sterling Morton, when he was Commissioner of Agriculture for Nebraska. Later he was appointed United States Secretary of Agriculture. In 1885 the Nebraska legislature designated April 22nd, Mr. Morton's birthday, for a legal holiday, to be known as Arbor Day.

The first public celebration of Arbor Day in Nebraska had been held in April, 1872. The early settlers in that state had found few trees and to them the lack of woodlands was a matter of serious concern, for a farmer needs wood for fuel and fence posts. After the prairies had been converted into cultivated fields, the high winds that swept unchecked over the vast treeless plains carried away the top soil. Nebraska farmers then began to plant trees for windbreaks, to protect their buildings, orchards and fields. When they first settled on the plains they planted shade trees along the roads, windbreaks near their farm houses and woodlots for fuel. So to the citizens of Nebraska the declaration of Arbor Day was merely a formal recognition of their earlier efforts. Arbor Day was inaugurated to remind them annually of the desirability and necessity of planting and caring for their trees. Today Nebraska is known as the Tree Planter State.

The idea of proclaiming an Arbor Day each year spread to other sections of the country. In 1882 the day was first celebrated in Ohio, and Cincinnati school children paraded to a park where trees were planted in memory of distinguished citizens. Since then children in the public schools have been active in tree planting. An effort has been made to impress on young people the importance of forestry and the need for actively endeavoring to beautify our homes. Since 1882 the custom of planting memorial trees and groves has been widely practiced.

Arbor Day is also celebrated in many of the Latin American countries. In Venezuela, for example, it is held throughout the country on the same day early in May. In each town or village the school children assemble in the park or principal square to sing and recite poems dedicated to trees; speeches are made and the ceremony ends with the planting of flowers and young trees.

However worth-while it may be to plant shade trees to beautify our cities the practice of reforesting scantily wooded areas is more important. Public-minded citizens and men interested in forestry have become alarmed over the rapid deforestation of our country and its meaning to the future of the United States. Today communities often plant municipal groves or arboretums. These forests owned by the public are used to protect watersheds, and to provide game and bird sanctuaries and public playgrounds. Near Chicago is an arboretum founded by Joy Morton, whose father was the originator of Arbor Day. Here trained foresters have planted such trees, shrubs, and flowers as will survive in the climate of Illinois. This arboretum is really a large outdoor museum of living plants.

Some states have chosen a native tree as their state tree and often this is the tree planted on Arbor Day. There are more than twenty-one different species of oak in Illinois, and the state legislature has officially designated the White Oak as our state tree.

MARIE B. PABST
Raymond Foundation

NOTE: In Halls 26 and 29 you will find many of the native trees of the United States.

This page is for your own notes and illustrations

FIELD MUSEUM STORIES

The Redwood Trees

Series XXXVI, No. 7
April 12, 1941

Looseleaf No. 43

The REDWOOD TREES

The Redwood trees and the Big trees of our western United States are the oldest and the largest of all living things. Some of these trees are more than 2,000 years old and exceed 350 feet in height. At the present time they grow naturally only in a few places. The Redwoods are found in a strip about 500 miles long and 30 miles wide close to the Pacific Ocean and stretching northward from central California into Oregon. This is a rather low, fog belt and the Redwoods seem to thrive in the moisture. The Big trees grow higher up in the mountains and are found only in a few isolated places farther east in California.

Redwoods and Big trees, also known as Sequoias, have no close relatives in any other part of the world today, but at one time in the past the same kinds of trees were growing in Europe, central Asia and scattered throughout North America.

Those early Redwoods were growing at the time of the last flying reptiles and dinosaurs, about 65 to 80 million years ago. They lived on through the appearance of such mammals as the mastodons, mammoths and saber-toothed tigers. Then the great ice glacier probably destroyed all these enormous trees except the two small groups in the western United States. The oldest of these living trees today were probably alive when the pyramids of Egypt were being built and before the time of Christ.

What kind of tree is this great Redwood? It is an evergreen tree, with flat, needle-like leaves and small cones. The slender leaves remain green for about two years before they turn brown, and may stay on the tree two more years before they drop. They are constantly falling, but at certain times of the year more leaves are shed; however, the tree is never entirely without leaves—it is evergreen. The cones, up to one inch in length, are small for such large trees and are shed yearly; together with the needles, they form a thick carpet on the forest floor.

The great trunks (as much as twenty feet in diameter) are covered with rough, reddish bark and often have burls which look like huge worts on the trees. These round trunks stretch up straight and tall for many feet before the branches thrust out to the sunshine above. The masses of tall, bare trunks topped with small crowns of branches produce an effect of great columns with rays of sunshine penetrating between them. On the dim, moist forest floor there is usually a luxuriant growth of ferns; any space bare of vegetation is entirely covered with the slippery brown needles.

The Redwoods show great vitality. They can sprout either from the seeds or from the roots, burls and trunks. Few insects and diseases attack the trees. The wood is slow to ignite because of the little resinous matter it contains. Few Sequoias have been known to die a natural death of old age; most of them have been destroyed by glacier, wind, and severe forest fire or have been cut down for lumber. But, although these trees have been able to live for many years, they can grow only in certain altitudes with the right temperature and moisture.

The scientific name, *Sequoia*, was given in honor of a Cherokee Indian, Sequoyah, who invented the first Cherokee Indian alphabet. The Redwood is *Sequoia sempervirens*, meaning an evergreen Sequoia, and the Big tree is *Sequoia gigantea*, signifying giant Sequoia. The common name, Redwood, refers to the color of the wood; it is often used for building purposes, especially for fence posts and shingles, where resistance to decay is needed. The wood of the burl is highly ornamental and is used in the making of fine furniture. As the wood becomes better known and is more in demand there is always the danger that too many trees will be felled for commercial purposes, that seedlings will not be started or allowed to replace the cut trees and that the few remaining stands of these great trees will eventually disappear.

For the purpose of protecting the Sequoias from further destruction and possible extinction, State and National Parks as well as private organizations have been formed so that these fine representatives of the Plant Kingdom may be preserved.

MIRIAM WOOD
Raymond Foundation

NOTE: In Hall 26 you may see an exhibit of the Sequoia.

This page is for your own notes and illustrations

FIELD MUSEUM STORIES

A Day with the Pygmies of Africa

Series XXXVI, No. 8
April 19, 1941

Looseleaf No. 44

A DAY WITH THE PYGMIES OF AFRICA

The day's work starts early in a village of African Pygmies. The women are up and about adding wood to the smouldering fires and cooking breakfast. Little swirls of smoke arise from the tops of the leaf-covered dome-shaped huts.

It is cold and damp in the jungle at this time of day, and, until the sun rises higher, the Pygmies are glad to warm themselves by the cheerful blaze. Soon the pot is boiling and breakfast is served on leaf plates as the family sits around the fire. Maybe there will be raw or cooked bananas for breakfast, or a porridge made from grated cassava root. Everybody eats a great deal because there will not be another meal till late in the afternoon.

"Os, os, os" rings out the hunting call of the leader to gather the youths and men together for the hunt. Soon, armed with spears or bows and arrows, and followed by the eager dogs, they are off into the forest. Maybe they will come back with an antelope or a wild pig for dinner, or possibly an okapi. Sometimes the men have a "round-up." They stretch a long net across a trail or between some trees. Some of them spread out through the woods with the dogs. If they should come upon an animal they surround it and drive it toward the outstretched net, where it gets tangled up. Then they quickly finish it off with their spears.

Soon after the men have departed and the remains of breakfast have been cleared up, some of the women and the girls take their baskets and go into the forest to gather firewood and any roots, seeds, and wild fruits they can find. The others go off to the nearby Negro villages to buy bananas, cassava, or sugar cane. The Pygmies cannot grow these plants so they provide the Negro farmers with meat in exchange for them. They also buy baskets and pottery jars, iron arrow and spear heads and knives from the Negroes, because they do not know how to make these things themselves.

Everyone is back in camp by the end of the afternoon, tired and hungry after the long day's work. For dinner there may be a vegetable stew and roasted meat, if the hunters have been lucky. Wild fruits, roasted caterpillars or ants, honey from a wild bees' nest, all these are the delicacies of a Pygmy meal.

After a good dinner everyone feels much happier. Usually some one starts a song. A drummer taps lightly on his drum with his fingers. Gradually the sound grows, louder and louder. Everyone joins in the singing chorus. Men and women gather into two separate lines in the clearing in the center of the village and the dancing starts, first a slight shuffle, then wilder and wilder as the dance progresses.

One by one, each tired dancer goes home and drops wearily on his bed made of two flat pieces of wood laid side by side. The Pygmies do not bother to undress, but sleep in their scanty clothes, a loincloth of skin or bark cloth, or a little apron of plaited bark. The fires burn low, and soon there is no sound to be heard in the village.

Many people wonder why the Pygmies are so small. Long ago people thought it was because they lived in the deep jungle and the lack of sunshine stunted their growth. The Pygmies themselves say that they are short because they walk around through the forest so much that their legs have worn down. But today scientists believe that the Pygmies are a separate small race of man.

They came to Africa maybe from far away Asia a very long time ago. But not all of them moved to Africa. Some went east instead. Their descendants are living today in parts of the Philippine Islands, the Andaman Islands, the Malay Peninsula, and New Guinea.

ELIZABETH McM. HAMBLETON
Raymond Foundation

NOTE: There are statues of Pygmies from Africa, the Malay Peninsula, and the Andaman Islands in Hall 3. Many things used by the African Pygmies can be found in Hall D, and there is an okapi in Hall 22.

This page is for your own notes and illustrations

FIELD MUSEUM STORIES

Primitive Snakes: Boas and Pythons

FIELD MUSEUM of NATURAL HISTORY
FOUNDED BY MARSHALL FIELD 1893
CHICAGO

Series XXXVI, No. 9
April 26, 1941

Looseleaf No. 45

PRIMITIVE SNAKES: BOAS AND PYTHONS

A LARGE BOA

Snakes include among their number some of the largest as well as some of the smallest of the reptile group. The greatest in size are the constricting snakes, the boas and pythons, which may be placed in one family since they are distinguished one from the other only by the relationship of certain skull bones. Although some members of this family are small, most of them are of more than average size and two forms may even reach a length of thirty feet and a weight of more than 200 pounds.

The name "constrictors" has been given to these snakes because, instead of killing with poison as do, for instance, the rattlesnakes, they first grasp the prospective meal with their jaws and then wrap several folds of their muscular body about it. The coils continue to squeeze the captured animal until its heart and breathing are stopped and death follows. The next trick of swallowing the prey whole without first breaking it into smaller parts, is made possible by the structure of the snake's skin and biting apparatus. The two halves of the lower jaw are loosely fastened together at their front ends and consequently can stretch widely apart and move independently. Both upper and lower jaws are bordered by a line of long teeth which slant toward the throat. As the swallowing process starts, the halves of both jaws work alternately backward and forward and this action, coupled with the one-way drag of the curved teeth, pulls and pushes the food down the throat. Sometimes, if the food is a large animal such as a small deer or leopard, the time taken for it to disappear completely into the snake may be rather long and the snake may run short of breath. It can then simply thrust its windpipe far forward and gulp in a quantity of fresh air. After the bulky food has passed the mouth, there is still the problem of fitting it into the relatively slender snake body. This is solved, however, by the stretching capacity of the snake's skin, for the pythons and boas have many rows of scales and consequently more skin free of scales between rows than is found in other snakes. It is this free skin which does the stretching and allows the body to accommodate the prey.

In spite of the fact that these snakes have most efficiently taken care of such problems as locomotion and food-getting, they are nevertheless called primitive because among some of their less advanced characteristics they show left-over vestiges of hind legs. The ancestors of present-day snakes all had legs much like those of the lizards, but gradually these were lost in the development of nearly all modern forms.

The diet of these snakes is a varied one, consisting of many kinds of mammals, birds, and reptiles. Although they can go several months without eating, they will also feed as often as every few days, and store the surplus food in the form of body fat.

Several times each year the skin is cast off. Immediately beforehand the skin surface becomes dull, the eyes cloudy, and the whole snake sluggish. To start the shedding process, the snake loosens the skin around its mouth by rubbing it against a rock or tree and then slowly crawls out of the old skin, leaving it behind, like a stocking pulled off inside out.

The pythons lay tough, leathery-shelled eggs which lie surrounded by the mother's coils until they hatch. The young of the boas, however, are born alive. In neither case is any care given the small ones after their birth or hatching and they are dependent entirely on themselves for finding food and protection.

Boas and pythons are widely scattered through most of the warmer parts of the world. The boas are common throughout the tropical areas of the Americas, and one rare python inhabits Mexico. The rest of the pythons are abundant in the warmer regions of the Old World, where a few small boas also live. It is thus only by a trip to the zoo or the circus that most of us have a chance to see a boa or python in action.

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NOTE: Examples of boas and pythons may be seen in Hall 18.

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